Ordering number: EN 2624A

Monolithic Linear IC

No.2624A

# LA6510

## 1 A Power Operational Amplifier

## OVERVIEW

The LA6510 is a high-performance power operational amplifier IC capable of delivering larger output currents than conventional op amps.

The LA6510 features an on-chip current limiter and provides high voltage gain and a high common-mode rejection ratio.

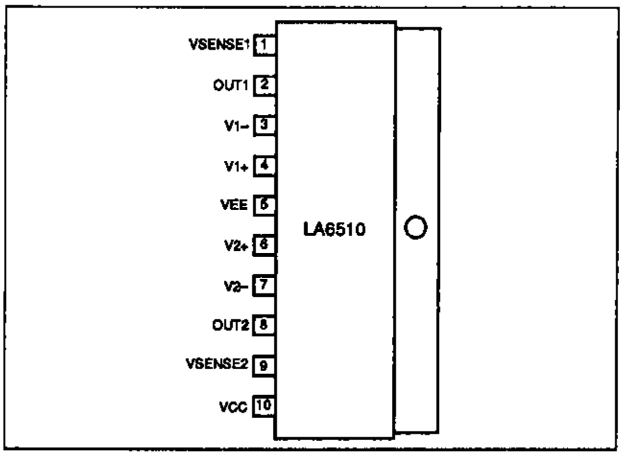
The LA6510 is an ideal choice for power applications such as DC servos, capstan drivers, actuator drivers, programmable power supplies and high-quality audio amplifiers.

The LA6510 is available in 10-pin SIPs and operates from −15 V and 15 V supplies.

## FEATURES

- 1 A output current
- 100 dB voltage gain
- 80 dB common-mode rejection
- 0.15 V/µs slew rate
- 2 mV offset voltage
- 10 nA offset current
- On-chip current limiter
- −15 V and 15 V supplies
- 10-pin SIP

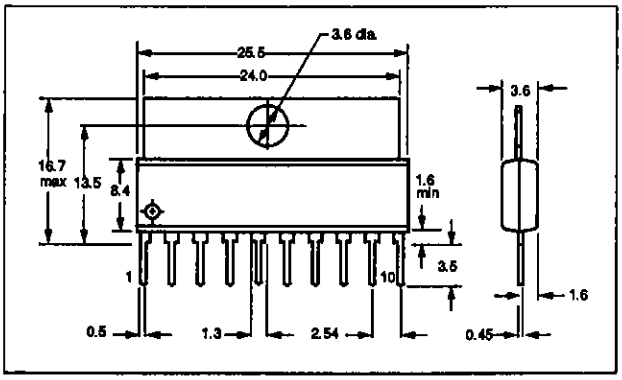
## PINOUT



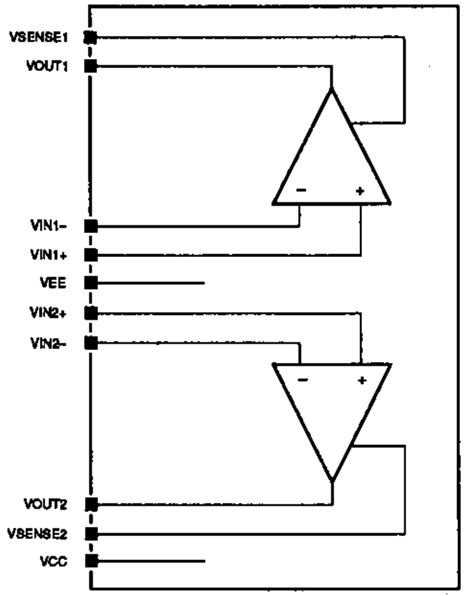

## PACKAGE DIMENSIONS

Unit: mm

**3064A-SIP10F**



## BLOCK DIAGRAM




## PIN DESCRIPTION

| Number | Name | Description |
|---|---|---|
| 1 | VSENSE1 | Voltage detect |
| 2 | OUT1 | Output |
| 3 | V1– | Inverting input |
| 4 | V1+ | Non-inverting input |
| 5 | VEE | –15 V supply |
| 6 | V2+ | Non-inverting input |
| 7 | V2– | Inverting input |
| 8 | OUT2 | Output |
| 9 | VSENSE2 | Voltage detect |
| 10 | VCC | 15 V supply |

## SPECIFICATIONS

### Absolute Maximum Ratings

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Supply voltages | $V_{CC}$ | 18 | V |
| | $V_{EE}$ | –18 | |
| Differential input voltage | $V_{ID}$ | 30 | V |
| Common-mode input voltage | $V_{ICOM}$ | ±15 | V |
| Output current | $I_o$ | 1.0 | A |
| Power dissipation | $P_d$ | 2.5 | W |
| Operating temperature range | $T_{opr}$ | –20 to 75 | deg. C |
| Storage temperature range | $T_{stg}$ | –55 to 150 | deg. C |

## Recommended Operating Conditions

$T_a$ = 25 deg. C

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Supply voltages | $V_{CC}$ | 15 | V |
| | $V_{EE}$ | −15 | |

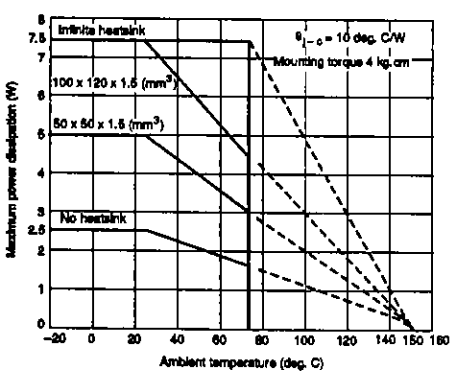
## Electrical Characteristics

$V_{CC}$ = 15 V, $V_{EE}$ = −15 V, $T_a$ = 25 deg. C unless otherwise noted

| Parameter | Symbol | Condition | Rating min | Rating typ | Rating max | Unit |
|---|---|---|---|---|---|---|
| Quiescent current | $I_{CCO}$ | | – | 12 | 20 | mA |
| Input offset voltage | $V_{IO}$ | $R_s \leq 10$ kΩ | – | 2 | 6 | mV |
| Input offset current | $I_{IO}$ | | – | 10 | 200 | nA |
| Input bias current | $I_B$ | | – | 100 | 700 | nA |
| Common-mode input voltage | $V_{ICM}$ | | −15 | – | 13 | V |
| Common-mode rejection ratio | CMR | | 70 | 80 | – | dB |
| Maximum output voltage | $V_O$ | $R_L$ = 33 Ω | ±12 | ±13 | – | V |
| Voltage gain | $VG_O$ | | – | 100 | – | dB |
| Slew rate | SR | $G_V$ = 0, $R_L$ = 33 Ω, R = 2.2 Ω, L = 0.1 µF | – | 0.15 | – | V/µs |
| Equivalent input noise voltage | $V_{NI}$ | $R_g$ = 1 kΩ, DIN AUDIO | – | 2 | – | µV |
| Supply voltage rejection ratio | SVR | | – | 30 | 150 | µV/V |
| Limiting current | $I_{SC}$ | $R_{SC}$ = 2.2 Ω | – | 0.35 | – | A |

## Typical Performance Characteristics

### Power dissipation vs. ambient temperature




## TYPICAL APPLICATION

